Science 10
Grade 10, Academic (SNC2D)

Credit – 1.0
Prerequisite – Science 9, Academic (SNC1D)
Teacher – Nathan Oldridge
Email – nathanoldridge@torontoprepschool.com
Textbook – ON Science 10 (2009), Blake et al., McGraw-Hill Ryerson
Extra-Help – Every morning from 9:00 to 9:50 or by appointment in the afternoon

Course Description
This course enables students to enhance their understanding of concepts in biology, chemistry, earth and space science, and physics, and of the interrelationships between science, technology, society, and the environment. Students are also given opportunities to further develop their scientific investigation skills. Students will plan and conduct investigations and develop their understanding of scientific theories related to the connections between cells and systems in animals and plants; chemical reactions, with a particular focus on acid-base reactions; forces that affect climate and climate change; and the interaction of light and matter.

Unit	Length
Unit 1: Biology - Tissues, Organs and Living Systems	27 hours
Unit 2: Chemistry - Chemical Reactions	28 hours
Unit 3: Earth Science - Climate Change	28 hours
Unit 4: Physics - Light and Geometric Optics	27 hours
Total	110 hours

Topics of Study

Unit 1: Biology - Tissues, Organs and Living Systems
- Plants and animals, including humans, are made of specialized cells, tissues, and organs that are organized into systems.
- Developments in medicine and medical technology can have social and ethical implications.

Unit 2: Chemistry – Chemical Reactions
- Chemicals react with each other in predictable ways.
- Chemical reactions may have a negative impact on the environment, but they can also be used to address environmental challenges.

Unit 3: Earth Science - Climate Change

- Earth's climate is dynamic and is the result of interacting systems and processes.
- Global climate change is influenced by both natural and human factors.
- Climate change affects living things and natural systems in a variety of ways.
- People have the responsibility to assess their impact on climate change and to identify effective courses of action to reduce this impact.

Unit 4: Physics - Light and Geometric Optics

- Light has characteristics and properties that can be manipulated with mirrors and lenses for a range of uses.
- Society has benefited from the development of a range of optical devices and technologies.

Overall Course Expectations

Unit 1: Biology - Tissues, Organs and Living Systems (27 hours)

- evaluate the importance of medical and other technological developments related to systems biology, and analyse their societal and ethical implications;
- investigate cell division, cell specialization, organs, and systems in animals and plants, using research and inquiry skills, including various laboratory techniques;
- demonstrate an understanding of the hierarchical organization of cells, from tissues, to organs, to systems in animals and plants.

Unit 2: Chemistry - Chemical Reactions

- analyse a variety of safety and environmental issues associated with chemical reactions, including the ways in which chemical reactions can be applied to address environmental challenges;
- investigate, through inquiry, the characteristics of chemical reactions;
- demonstrate an understanding of the general principles of chemical reactions, and various ways to represent them.

Unit 3: Earth Science - Climate Change

- analyse some of the effects of climate change around the world, and assess the effectiveness of initiatives that attempt to address the issue of climate change;
- investigate various natural and human factors that influence Earth's climate and climate change;
- demonstrate an understanding of natural and human factors, including the greenhouse effect, that influence Earth's climate and contribute to climate change.

Unit 4: Physics - Light and Geometric Optics

- evaluate the effectiveness of technological devices and procedures designed to make use of light, and assess their social benefits;
- investigate, through inquiry, the properties of light, and predict its behaviour, particularly with respect to reflection in plane and curved mirrors and refraction in converging lenses;
- demonstrate an understanding of various characteristics and properties of light, particularly with respect to reflection in mirrors and reflection and refraction in lenses.

Required Materials

- 3-ring binder
- Lined and blank paper
- Pens, pencils, an eraser, a calculator, and ruler

Academic Due Dates

All homework, assignments, and projects will have a **due date** and a **window of opportunity date**.

The **due date** represents the date in which the assignment/lab/project is due. Students should submit the homework/assignment/project to their teacher on the due date. If a student does not submit the task on the due date, the teacher will contact the parents/guardian to notify them of the student's outstanding work. The teacher **will not** provide support after the due date has passed.

The **window of opportunity date** represents the final date in which the subject teacher will accept the homework/assignment/project. All work submitted on the original due date will also be returned to the students on this day. The window of opportunity date will be different depending on the task but it, along with the due date, will always be clearly communicated to the class.

Assessment and Evaluation

Course work (tests, quizzes, laboratories, and assignments) will account for 70% of your final mark.
The end of the course will feature a course-culminating task, which includes a final exam (15% of your final mark) and final project (15% of your final mark).

Course Information

This class has a Wiki site that will contain important dates, homework updates, class handouts, and some class notes. The wiki can be found at
http://tps-snc2d-oldridge-fall2011.wikispaces.com/